

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) Method for software emulation of hard disks of a data processing platform at the level of the operating system with parameterizable management on the fly of requests for writing and reading data, ~~characterized by the fact that it consists of~~ consisting in creating in a first step a representation of a real hard disk in which the orders of loading and execution of certain components of the operating system of a data processing platform may be modified, then in a second step loading on said data processing platform one or more peripheral drivers, among which at least one of the peripheral drivers permits real dialogue with a data storage support containing the data of the emulated hard disk, then simulating in a third step the behavior of a real hard disk for the operating system.

2. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the management of said data write requests that the operating system sends to the emulated hard disk is accomplished at the peripheral driver level and/or at the level of an optional hard disk server service on the network the written data being stored according to the parameterization of said peripheral drivers and/or said service server of the hard disk on the network

- either directly in the support containing the emulated hard disk,

- or in the memory, random access or virtual, accessible to the operating system using the emulated hard disk,
- or in a volatile storage space accessible to the operating system using the emulated hard disk,
- or in a non-volatile storage space accessible to the operating system using the emulated hard disk,
- or in a volatile storage space accessible to the server service of emulated hard disks on a data processing network,
- or in a non-volatile storage space accessible to the server service of emulated hard disks on a data processing network.

3. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the management of the data reading requests that the operating system issues to the emulated hard disk is accomplished at the peripheral driver level and/or at the level of an optional hard disk server service on the network, the readings of previously written data being performed in the storage space:

- either directly in the support containing the emulated hard disk,
  - or in the random access or virtual memory accessible to the operating system using the emulated hard disk,
  - or in a volatile storage space accessible to the operating system using the emulated hard disk,
  - or in a nonvolatile storage space accessible to the operating system using the emulated hard disk,
- or in a volatile storage space accessible to the server service of emulated hard disks on a data processing network,

- or in a non-volatile storage space accessible to the server service of emulated hard disks on a data processing network.

4. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the emulation of the hard disk provided to the operating system of a client station is accomplished by the agency of a single, monolithic peripheral driver which communicates with the operating system in the manner of a hard disk and which communicates with the support containing the data of said emulated hard disk in a manner specific to this support.

5. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the data of the emulated hard disk or disks are accessible to the client stations via a data processing network.

6. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein if an emulated hard disk is to be started up, a low level micro-software module is responsible for access to the data contained in said emulated hard disk by providing an interface of the type of that provided by the micro-software having access to the data of real hard disks by the operating system started up at the client station.

7. (currently amended) Method as claimed in claim 6 ~~claims 5 and 6~~, ~~characterized in that~~ wherein the micro-software could, in the case of computers using bootup memory programs of the "PXE" type (PXE bootup PROM), use the functions made available by these "PROMS" for controlling communications via the data processing network independently of the network interface model employed.

8. (currently amended) Method as claimed in claim 7, ~~characterized in that~~ wherein the low level micro-software is loaded in the memory of the client station and executed by using the functions made available by a bootup "PROM".

9. (currently amended) Method as claimed in claim 6, ~~characterized in that~~ wherein the low level micro-software is loaded in the memory of the client station and executed as a component of the basic standard micro-software (BIOS, for example) of the client station, said low level micro-software providing the same functions as the access services on real hard disks normally provided by the basic standard micro-software.

10. (currently amended) Method as claimed in claim 6, ~~characterized in that~~ wherein the low-level micro-software is loaded in the memory of the client station from a third party data support supported as a startup peripheral by the client station.

11. (currently amended) Method as claimed in claim 5, ~~characterized in that~~ wherein at least one peripheral driver loaded and executed by the operating system of the client station provides the functions of access, via the data processing network, to the data contained in the emulated hard disks.

12. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein if the data support containing the data of the emulated hard disk(s) is a support that does not support writing in real time, or the system of hard disk emulation according to the invention is parameterized not to accept the writing of data directly in the support containing

the data of the emulated hard disk, the peripheral drivers providing the emulation of the hard disk at the client stations method the data writing requests issued by the operating system to the emulated hard disk(s) in such a way that the written data are stored in a storage space different from the data support containing the data of the emulated hard disk(s).

13. (currently amended) Method as claimed in claim 12, ~~characterized in that~~ wherein the data writing requests issued by the client station operating system to the emulated hard disk(s) are processed in such a way that the written data are stored in the random access memory of the client station.

14. (currently amended) Method as claimed in claim 12, ~~characterized in that~~ wherein the data writing requests issued by the client station operating system to the emulated hard disk(s) are processed in such a way that the written data are stored in the virtual memory of the client station.

15. (currently amended) Method as claimed in claim 12, ~~characterized in that~~ wherein the data writing requests issued by the client station operating system to the emulated hard disk(s) are processed in such a way that the written data are stored in a data file accessible to the operating system of the client station.

16. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the data writing requests issued by the operating system to the emulated hard disk(s) are, at a given moment, redirected to one and only one storage space; the storage space in which the written data are redirected may be changed on the fly during an operating session of the operating system of a client station.

17. (currently amended) Method as claimed in claim 12, ~~characterized in that~~ wherein the storage space used for storage of the written data may be volatile, i.e. be emptied of data that are stored in each new operating session of the client station operating system or nonvolatile so as to permit the written data of an operating session of the operating system to persist from one client station to another.

18. (currently amended) Method as claimed in claim 16 ~~claims 16 and 17~~, ~~characterized in that~~ wherein the volatile character of the redirections of the written data is determined upon initialization of the operating session of the operating system of a client station.

19. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the data reading requests issued by the operating system may be performed in different storage spaces during an operating session of the operating system of a client station.

20. (currently amended) Method as claimed in claim 19, ~~characterized in that~~ wherein the data reading requests issued by the operating system to an emulated hard disk carried out in different storage spaces are following an order of priority.

21. (currently amended) Method as claimed in claim 5, ~~characterized in that~~ wherein a specific program called "server software" is in charge at one of the stations of the data processing network, on the one hand, of the communications via the network with the client stations accessing the emulated hard disks, and on the other, of



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accessing the data support containing the data of the emulated hard disks.

22. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein if the hard disk emulation system is parameterized so that the data write requests received by the server software are intended for a specific emulated hard disk they are not redirected but stored directly in a support containing the data of the emulated hard disk itself, and only one client station can access said emulated hard disk at a given time.

23. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein in order to permit several client stations to access an emulated hard disk simultaneously, the server software is capable of redirecting specifically the data write requests issued by a client station A to a given storage space, and of redirecting the data write requests issued by another client station B to another given storage space.

24. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein in order to permit the startup from and/or simultaneous access to the same emulated hard disk or 100% identical copies of the same emulated hard disk, certain constituent components of the invention loaded and executed by the client stations or server software are capable of modifying, on the fly or before their effective use by the operating system, of certain data contained in the emulated hard disk.

25. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the emulation itself is performed for the operating system of the client stations at the level

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of the class of virtual peripherals of the file system type as in the products "Qualystem LiteNET PC 1.x" and "Qualystem LAN PC 2.x" (CIFS or SMB file system) or "Qualystem Rescue 1.x" (ISO9660/Joliet, CDFS or UDF file System ).

26. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the emulation is performed for the operating system of the client stations at the level of the class of disk peripherals itself and not at the file system level. ~~This type of emulation is employed, for example, in the products "Qualystem LAN PC 3.x" (data support for emulated hard disks residing on a server of a data processing network) or "Qualystem Rescue 2.x and 3.x" (data support of emulated disks residing in the startup part called "El Torito" of an optical disk, CD or DVD).~~

27. (currently amended) Method as claimed in claim 1, ~~characterized in that~~ wherein the significant data contained in the emulated hard disk and are copied by a software tool executed at a reference station from a real hard disk called the reference hard disk that is accessible to the operating system of said reference station.

28. (currently amended) Method as claimed in claim 27, ~~claims 25 and 27, characterized in that~~ wherein the software tool creates an image directory that contains the data of the emulated hard disk.

29. (currently amended) Method as claimed in claim ~~claims 26 and 27, characterized in that~~ wherein the software tool creates an image file that contains the data of the emulated hard disk.

30. (currently amended) Method as claimed in claim 1,



~~characterized in that~~ wherein in order to permit startup from an emulated hard disk, the sequence of loading of the components of the operating system requires an adjustment so that all components of the operating system on which the peripheral drivers permitting access to the emulated hard disk according to the invention depend are loaded and usable at the moment when the operating system needs to access the emulated hard disk by using the peripheral drivers and no longer by using the firmware functions (BIOS).

31. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein in order to accelerate the simultaneous access by several client stations to the same emulated hard disk whose data are contained in a data support accessible to the server station, the data are sent by the server station to the client stations within the scope of the hard disk emulation globally and at a single time by using the "broadcast" or "multicast" mechanisms instead of the "unicast" mechanism.

32. (currently amended) Method as claimed in claim 31, ~~characterized in that~~ wherein the data sent by "broadcast" or by "multicast" by the server station are stored by the client stations that accept them in a local cache situated in the memory (real or virtual) of said client stations.

33. (currently amended) Method as claimed in claim 31, ~~characterized in that~~ wherein a reading request for data in the emulated hard disk issued by the operating system of a client station generates an explicit data reading request sent to the server station only if said data are not already present in said local cache.

34. (currently amended) Method as claimed in claim 33,

~~characterized in that~~ wherein the data read in the local cache are removed after being read by the client station so as to free up space in said local cache.

35. (currently amended) Method as claimed in claim 31, ~~characterized in that~~ wherein the decision to send, within the scope of the hard disk emulation according to the invention, of data by "multicast/broadcast" or "unicast" is made at the server module level which provides the functionalities necessary for the hard disk emulation at the client stations.

36. (currently amended) Method as claimed in claim 31, ~~characterized in that~~ wherein the client stations may modify their subscription to receiving the data sent via "broadcast/multicast" by the server station within the scope of emulation of hard disks according to the invention.

37. (currently amended) Method as claimed in claim 32, ~~characterized in that~~ wherein the client stations may erase the data from the local cache after a certain parameterizable time.

38. (currently amended) Method as claimed in claim 5, ~~characterized in that~~ wherein the server module making the data contained in the emulated hard disks available to client stations may use any suitable network protocol.

39. (currently amended) Method as claimed in ~~claims 5 and 6~~ claim 5, ~~characterized in that~~ wherein the low level software program executed by the client stations and permitting access to the data contained in the emulated hard disks may use any suitable network protocol.

40. (currently amended) Method as claimed in claim 11,

~~characterized in that~~ wherein the peripheral driver(s) according to the invention executed by the client stations and permitting access to the data contained in the emulated hard disks may use any suitable network protocol.

41. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein if the data support containing the data of the emulated hard disk(s) is a support that does not support writing in real time, or the system of hard disk emulation according to the invention is parameterized not to accept the write operations directly in the support containing the data of the emulated hard disk, the server software providing the emulation of the hard disk at the client stations processes the data write requests issued by the operating system to the emulated hard disk(s) in such a way that the written data are stored in a storage space different from the data support containing the data of the emulated hard disk(s).

42. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein the data write requests issued by the client station operating system to the emulated hard disk(s) are processed in such a way that the written data are stored in the random access memory of the server station.

43. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein the data write requests issued by the client station operating system to the emulated hard disk(s) are processed in such a way that the written data are stored in the virtual memory of the server station.

44. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein the data write requests issued by the client station operating system to the emulated hard

disk(s) are processed in such a way that the written data are stored in a data file accessible to the server software.

45. (currently amended) Method as claimed in claim 21, ~~characterized in that~~ wherein the storage space used for storage of the written data may be volatile, i.e. be emptied of data that are stored in each new operating session of the client station operating system or nonvolatile so as to permit the written data of an operating session of the operating system to persist from one client station to another.

46. (currently amended) Method as claimed in claim 16, ~~claims 16 and 21, characterized in that~~ wherein the volatile character of the redirections of the written data is determined upon initialization of the operating session of the operating system of a client station.